

Isinglass Annual Water Use versus Stream Flow – Calendar Year 2004

Water use was reported by four sources and no returns in the Isinglass Water Management Planning Area. The Department generated an estimated water use for another source. Only two of the five sources met the definition of an Affected Water User. The rules require the user to have a source or withdrawal within 500 feet of a tributary to the Designated River. Three sources, Nippo Lake Golf Club (a groundwater and a surface water source for irrigation using reported water use of 11,743,114 gallons between April and October 2004) and Paradise Estates (water supply- reported water use of 8,198,468 gallons for 2004), were not included in this assessment because they did not meet the definition of an Affected Water User. Water use in July 2004 by these three sources averaged 132,655 gallons per day representing 6.0% of the reported water use in the watershed.

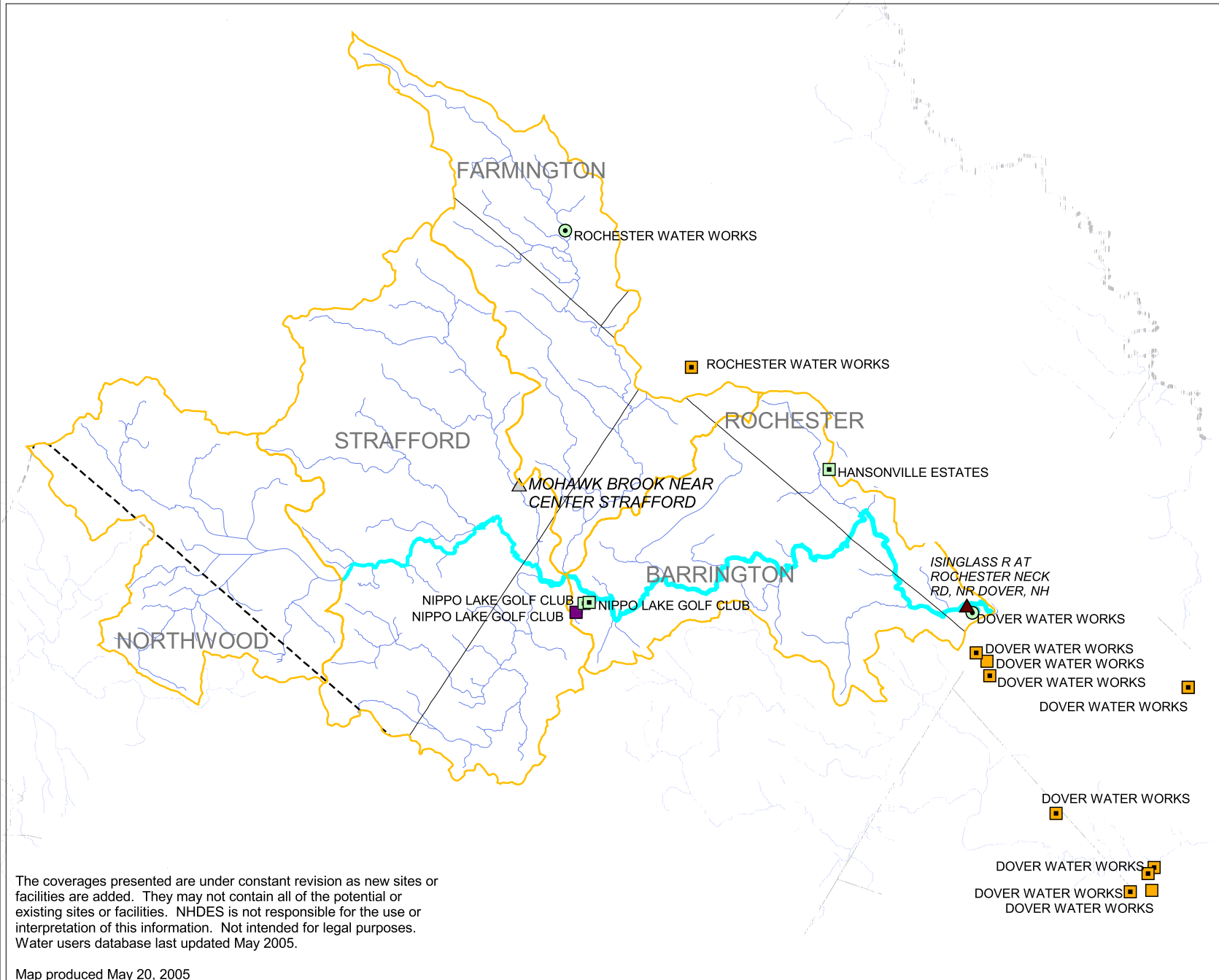
The Water Management Planning Area has no hydropower facilities. Assessed water use was entirely for two public water supply sources for the cities of Rochester and Dover. Rochester diverts water from the Berry River tributary into a reservoir outside of the Water Management Planning Area. Dover withdraws water directly from the Isinglass River from a location near the end of the Designated River.

The Isinglass Water Management Planning Area covers 74 square miles and includes a streamflow gage (USGS 01072870 ISINGLASS R AT ROCHESTER NECK RD, NR DOVER, NH.) measuring 73.6 square miles of the watershed. For this report the average monthly streamflow was transposed areal to all impact points on the Designated River. The 2004 assessment resulted in twelve months not in compliance with the General Standard. The Isinglass Designated River was not in compliance with the General Standard during any month in 2004 from the confluence with Berry River to the end of the Designated River (Mile 11.2 to 0.0). It must be noted however that this conclusion is drawn from the Department's estimated water use for Rochester. Rochester diverts water from behind a dam on Berry River. Water is diverted behind this dam to a two-foot pipe that feeds by gravity drainage to Rochester Reservoir. The water use estimate for Rochester's withdrawal from Berry River is based on the expected drainage from the watershed area of the diversion dam which is 8.7 square miles. Flow estimates for a two-foot diameter concrete pipe were made using Chazy-Mannings equation with any stream flow in excess of this amount assumed to overtop the dam. This matches Department staff observation that all the water above the dam is diverted at lower flows. Despite using an approximation for pipe flow in this assessment process, the amount of the exceedence of the General Standard is of such magnitude, that the conclusion is correct, while the magnitude remains an estimate.

Isinglass Designated River	River Miles not in Compliance with General Standard (0 at the mouth)	Length of River Miles not in Compliance with General Standard	Maximum value of Aggregate WU /Stream flow	2003 Months not in Compliance with the General Standard
January	11.2 to 0.0	11.2	16%	x
February	11.2 to 0.0	11.2	22%	x
March	11.2 to 0.0	11.2	16%	x
April	11.2 to 0.0	11.2	11%	x
May	11.2 to 0.0	11.2	15%	x

June	11.2 to 0.0	11.2	15%	x
July	11.2 to 0.0	11.2	15%	x
August	11.2 to 0.0	11.2	15%	x
September	11.2 to 0.0	11.2	15%	x
October	11.2 to 0.0	11.2	15%	x
November	11.2 to 0.0	11.2	15%	x
December	11.2 to 0.0	11.2	15%	x

Isinglass River Affected Water User Facilities: Source and Discharge Locations



Legend

Affected Water Users

- Source
- Discharge

Affected Water Users (outside WMPA)

- Source
- Discharge

Water Users (outside 500 ft of hydrology)

- Source
- Discharge

Stream Gages

- ▲ Active
- ▲ Inactive

~ Designated Reach

~ Hydrology

 State boundary

 Town boundary

 WMPA

The coverages presented are under constant revision as new sites or facilities are added. They may not contain all of the potential or existing sites or facilities. NHDES is not responsible for the use or interpretation of this information. Not intended for legal purposes. Water users database last updated May 2005.

Map produced May 20, 2005

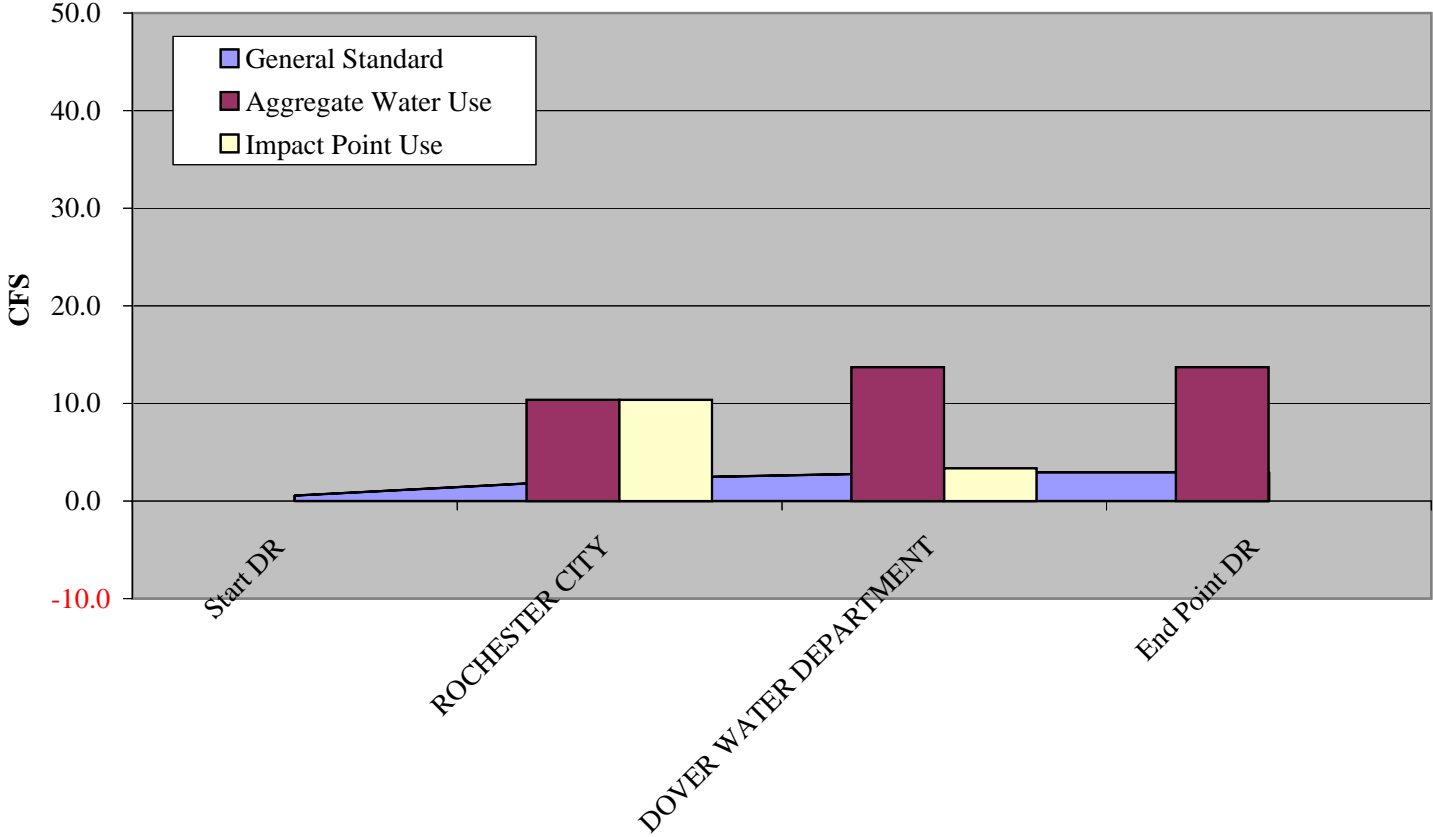
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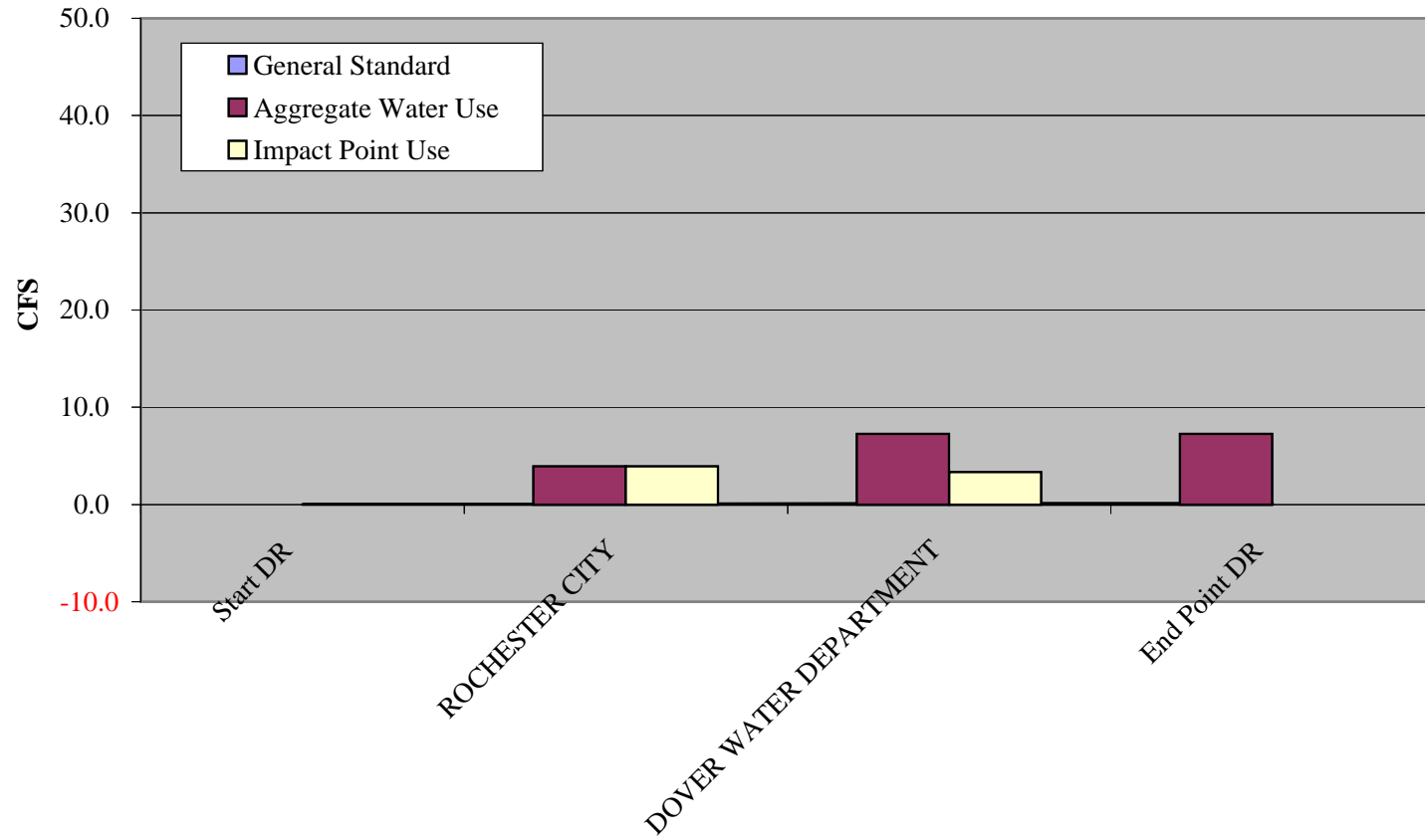
0 1 2 Miles

2004 Isinglass Water Use in CFS															
WU_NAME	FACILITY	WUSD_ID	DA on DR (SQ MILE)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Start DR	Bow Lake		14.26												
ROCHESTER CITY	ROCHESTER WATER WORKS	20011 20011-S03	57.29	10.367	3.913	10.118	31.569	31.569	10.012	3.192	5.733	12.766	10.166	13.357	30.379
DOVER WATER DEPARTMENT	WATER WORKS	20006 20006-S09	73.71	3.342	3.342	3.342	3.309	3.342	2.451	0.000	0.000	0.000	1.186	2.896	3.340
End Point DR	Confluence Isinglass and Cochecho		73.84												
2004 Isinglass Aggregate Water Use in CFS															
WU_NAME	FACILITY	WUSD_ID	DA on DR (SQ MILE)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Start DR	Bow Lake		14.26	0	0	0	0	0	0	0	0	0	0	0	0
ROCHESTER CITY	ROCHESTER WATER WORKS	20011 20011-S03	57.29	10.367	3.913	10.118	31.569	31.569	10.012	3.192	5.733	12.766	10.166	13.357	30.379
DOVER WATER DEPARTMENT	WATER WORKS	20006 20006-S09	73.71	13.709	7.254	13.460	34.879	34.911	12.463	3.192	5.733	12.766	11.352	16.254	33.719
End Point DR	Confluence Isinglass and Cochecho		73.84	13.709	7.254	13.460	34.879	34.911	12.463	3.192	5.733	12.766	11.352	16.254	33.719
2004 Isinglass Estimated Monthly Stream Flow at Each Impact Point in CFS															
			Calculated monthly mean streamflow in CFMS	1.19	0.45	1.16	5.01	3.68	1.15	0.37	0.66	1.47	1.17	1.54	3.49
WU_NAME	FACILITY	WUSD_ID	DA on DR (SQ MILE)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Start DR	Bow Lake		14.26	17.0	6.4	16.6	71.5	52.5	16.4	5.2	9.4	20.9	16.7	21.9	49.8
ROCHESTER CITY	ROCHESTER WATER WORKS	20011 20011-S03	57.29	68.3	25.8	66.6	287.2	210.9	65.9	21.0	37.8	84.1	66.9	88.0	200.1
DOVER WATER DEPARTMENT	WATER WORKS	20006 20006-S09	73.71	87.8	33.1	85.7	369.5	271.4	84.8	27.0	48.6	108.2	86.1	113.2	257.4
End Point DR	Confluence Isinglass and Cochecho		73.84	88.0	33.2	85.9	370.2	271.9	85.0	27.1	48.7	108.4	86.3	113.4	257.8
2004 Isinglass Estimated Monthly General Standard at Each Impact Point in CFS															
			General Standard in cfs	0.04	0.0017	0.04	0.16	0.04	0.04	0.0017	0.02	0.04	0.04	0.04	0.04
WU_NAME	FACILITY	WUSD_ID	DA on DR (SQ MILE)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Start DR	Bow Lake		14.3	0.57	0.02	0.57	2.3	0.57	0.57	0.024	0.285	0.57	0.57	0.57	0.57
ROCHESTER CITY	ROCHESTER WATER WORKS	20011 20011-S03	57.3	2.3	0.1	2.3	9.2	2.3	2.3	0.10	1.15	2.3	2.3	2.3	2.3
DOVER WATER DEPARTMENT	WATER WORKS	20006 20006-S09	73.7	2.9	0.1	2.9	11.8	2.9	2.9	0.13	1.47	2.9	2.9	2.9	2.9
End Point DR	Confluence Isinglass and Cochecho		73.8	3.0	0.1	3.0	11.8	3.0	3.0	0.13	1.48	3.0	3.0	3.0	3.0
2004 Isinglass Estimated Monthly Margin of the Aggregate Water Use Below the General Standard in CFS															
WU_NAME	FACILITY	WUSD_ID	DA on DR (SQ MILE)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Start DR	Bow Lake		14.3	0.57	0.02	0.57	2.28	0.57	0.57	0.02	0.29	0.57	0.57	0.57	0.57
ROCHESTER CITY	ROCHESTER WATER WORKS	20011 20011-S03	57.3	(8.08)	(3.81)	(7.83)	(22.40)	(29.28)	(7.72)	(3.09)	(4.59)	(10.47)	(7.87)	(11.07)	(28.09)
DOVER WATER DEPARTMENT	WATER WORKS	20006 20006-S09	73.7	(10.76)	(7.13)	(10.51)	(23.09)	(31.96)	(9.51)	(3.07)	(4.26)	(9.82)	(8.40)	(13.31)	(30.77)
End Point DR	Confluence Isinglass and Cochecho		73.8	(10.75)	(7.13)	(10.51)	(23.06)	(31.96)	(9.51)	(3.06)	(4.26)	(9.81)	(8.40)	(13.30)	(30.76)

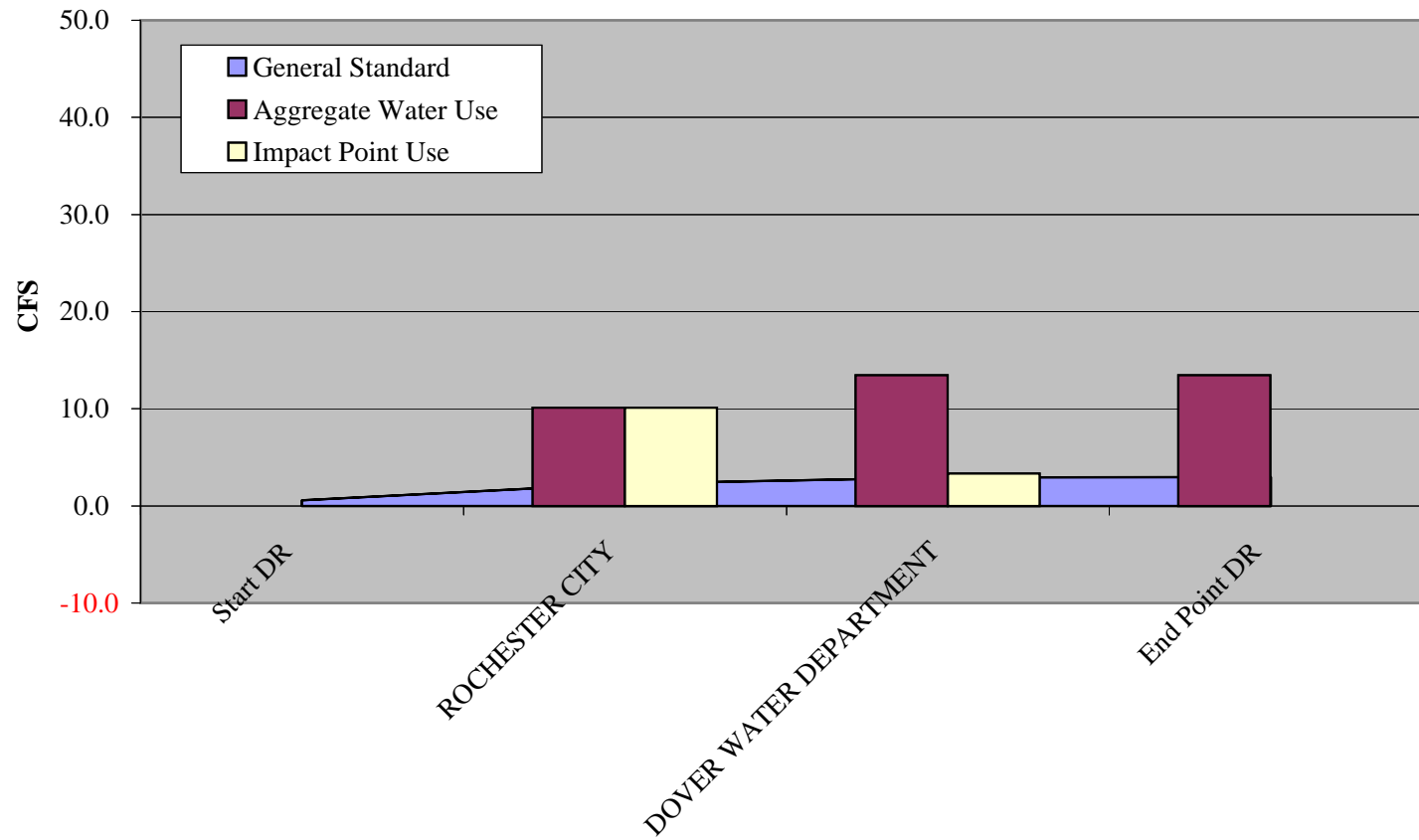
January 2004 Isinglass



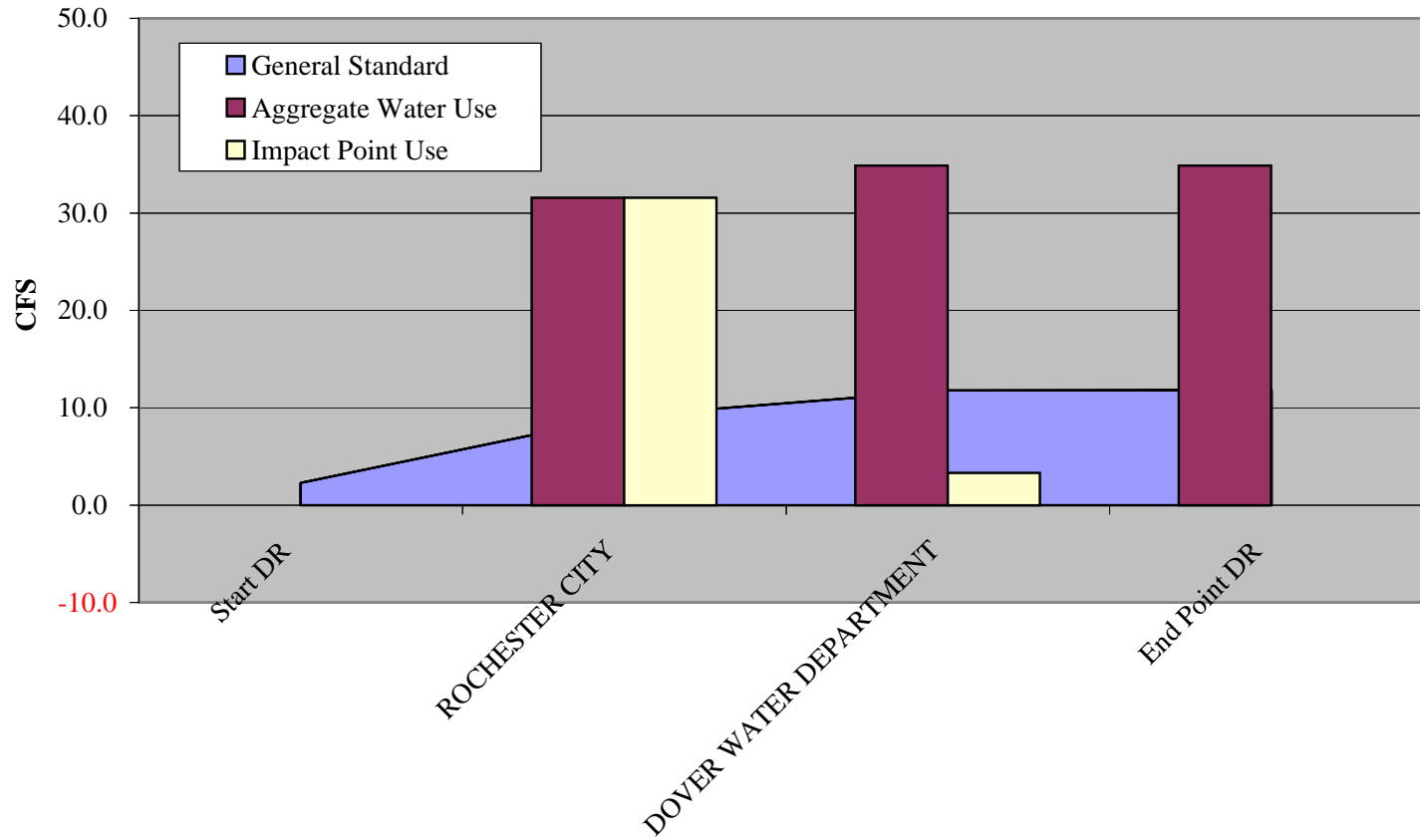
February 2004 Isinglass



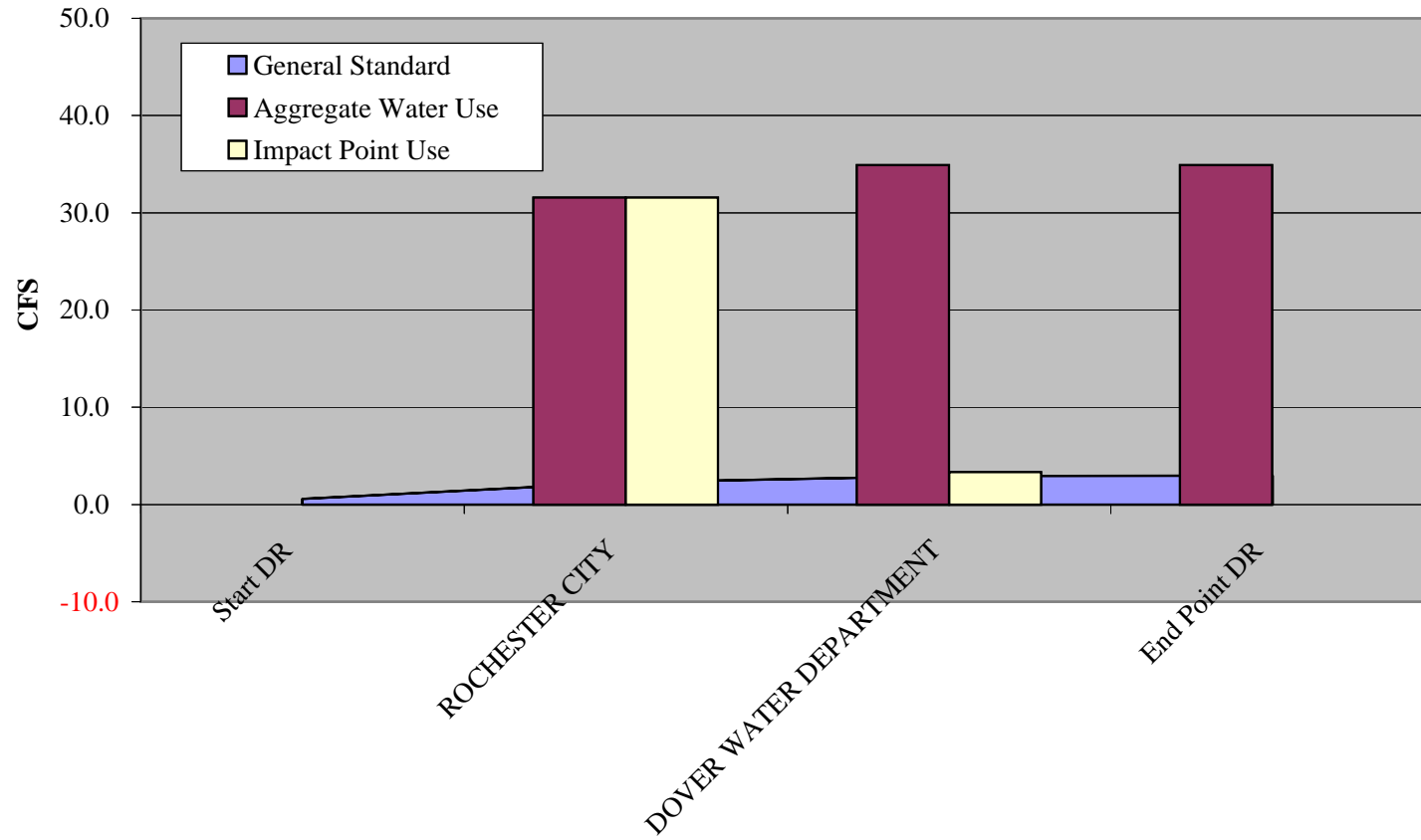
March 2004 Isinglass



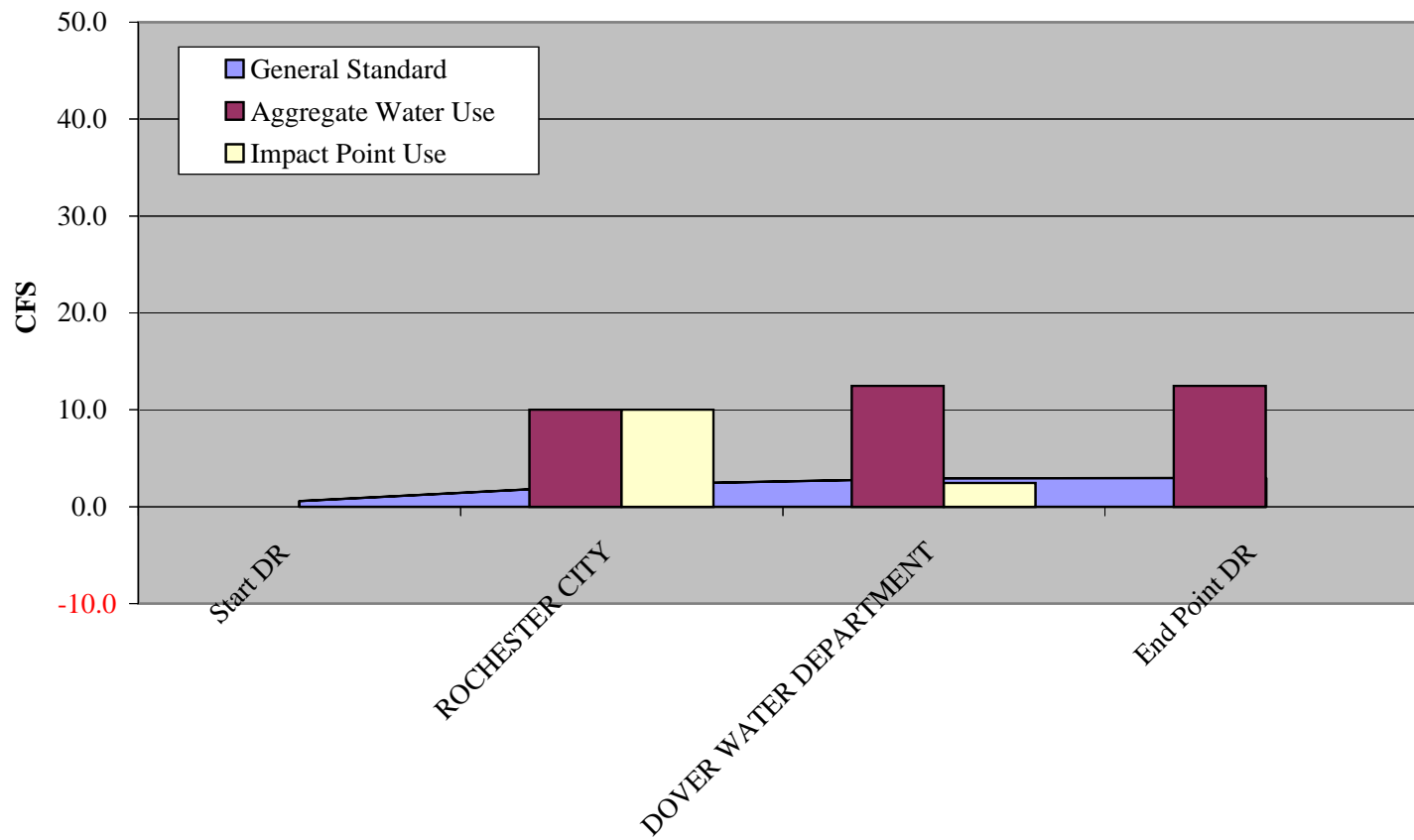
April 2004 Isinglass



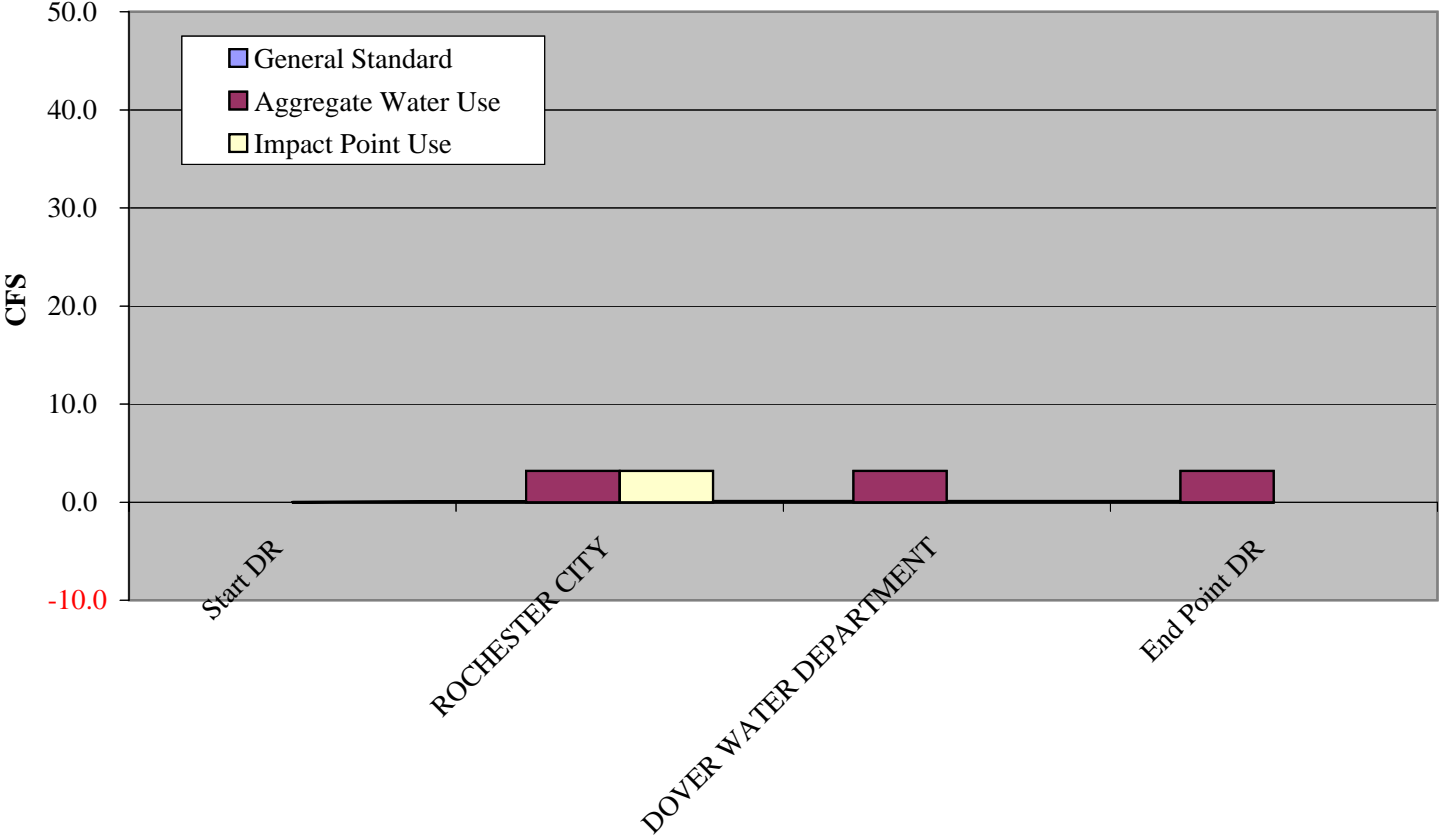
May 2004 Isinglass



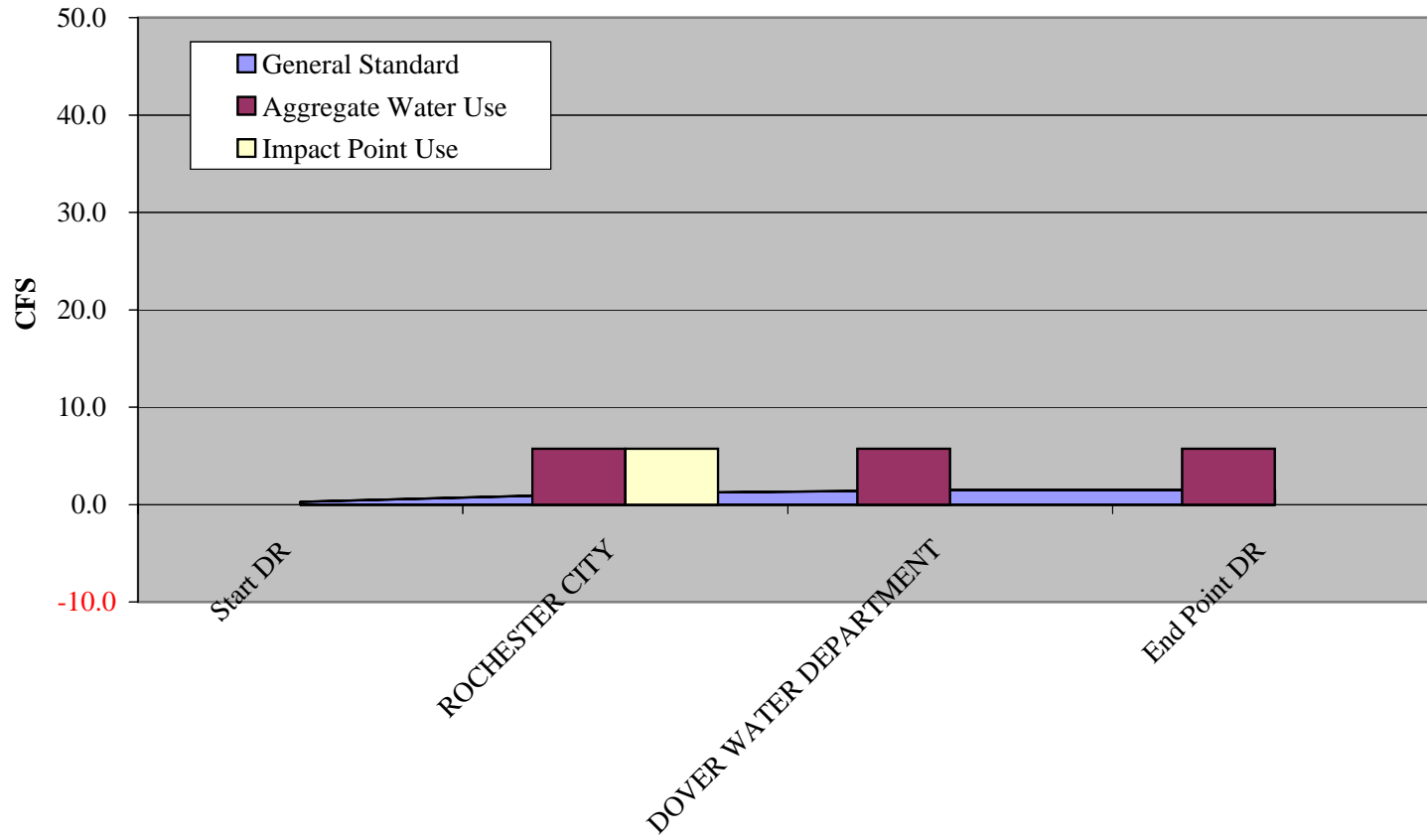
June 2004 Isinglass



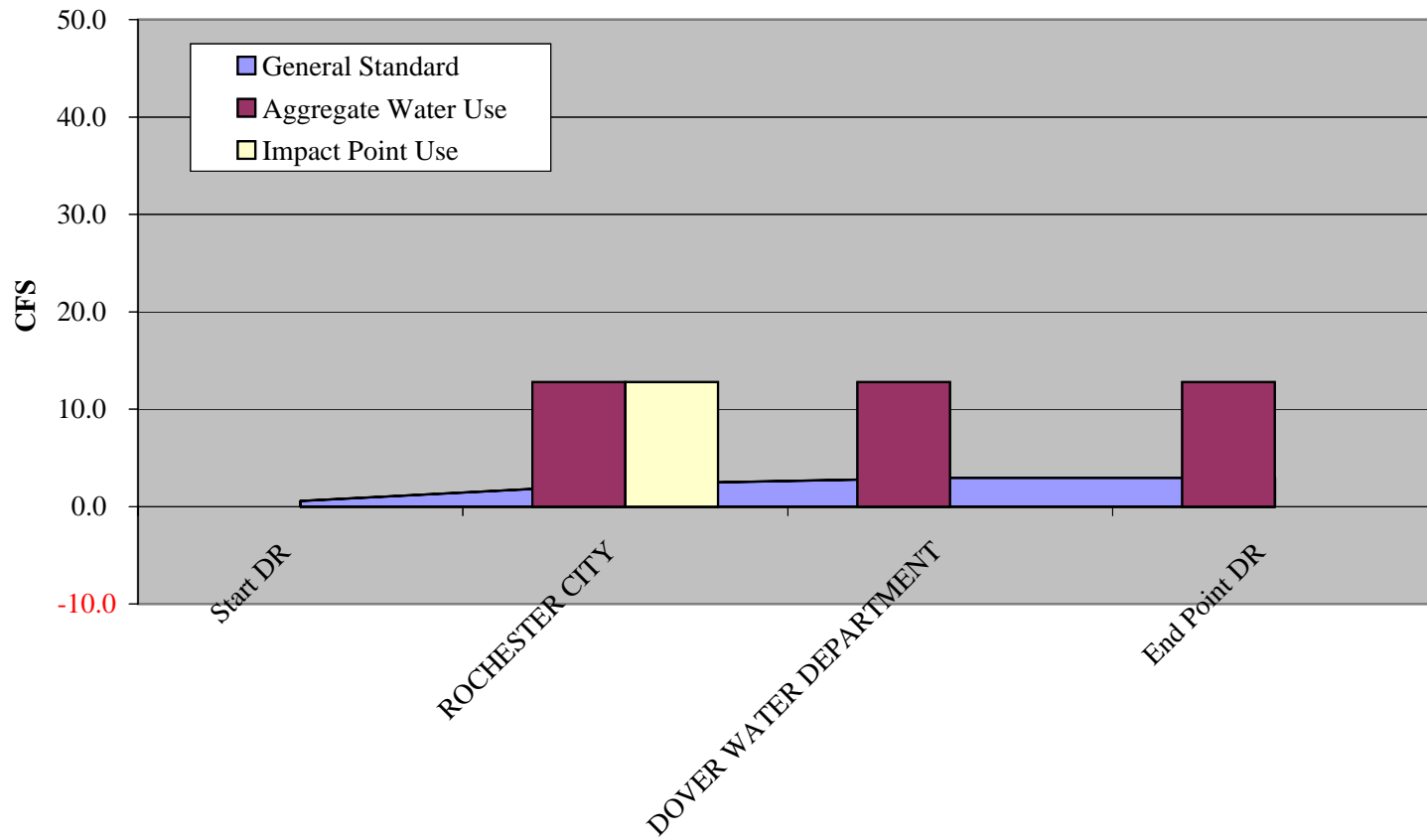
July 2004 Isinglass



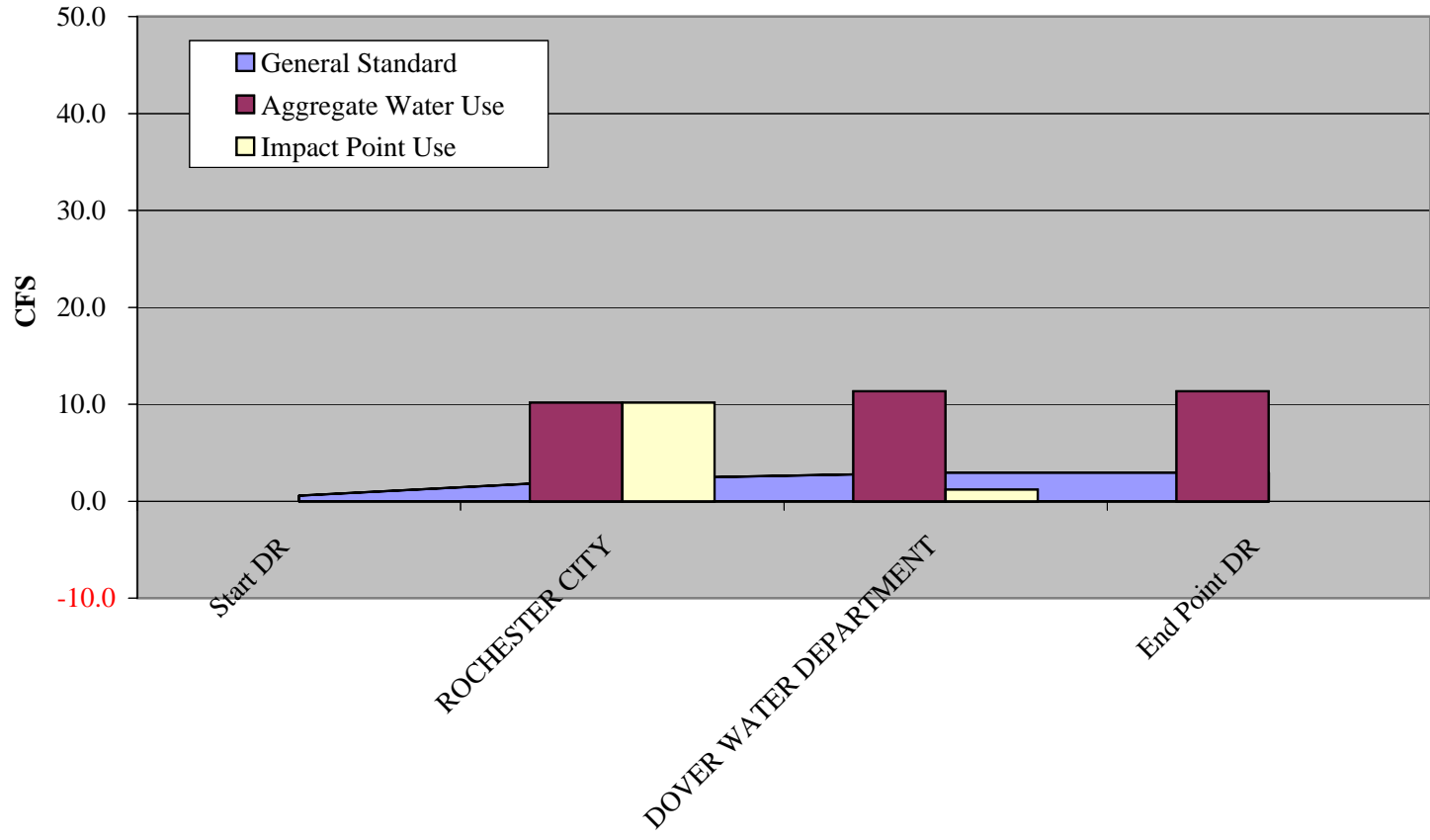
August 2004 Isinglass



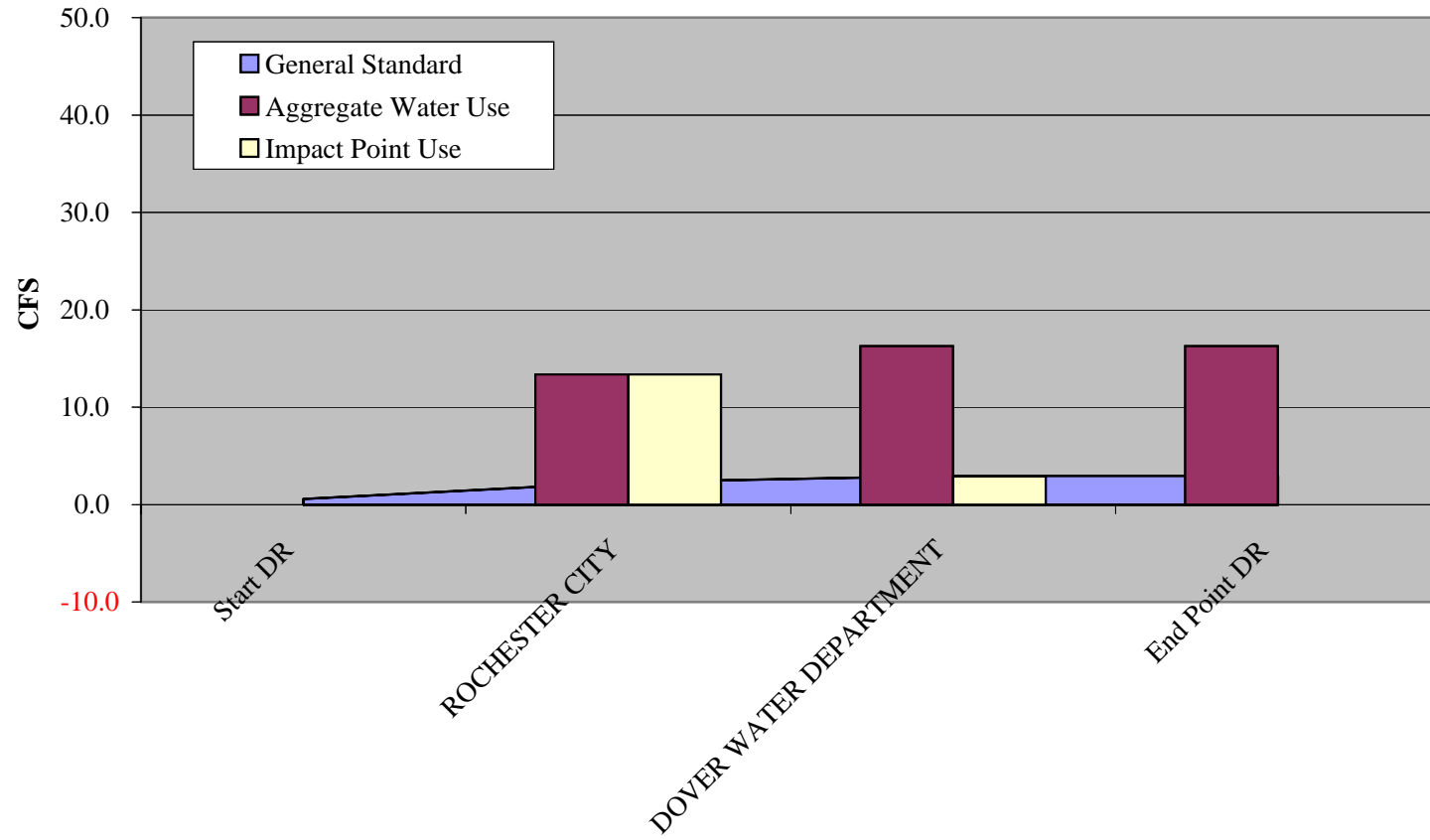
September 2004 Isinglass



October 2004 Isinglass



November 2004 Isinglass



December 2004 Isinglass

